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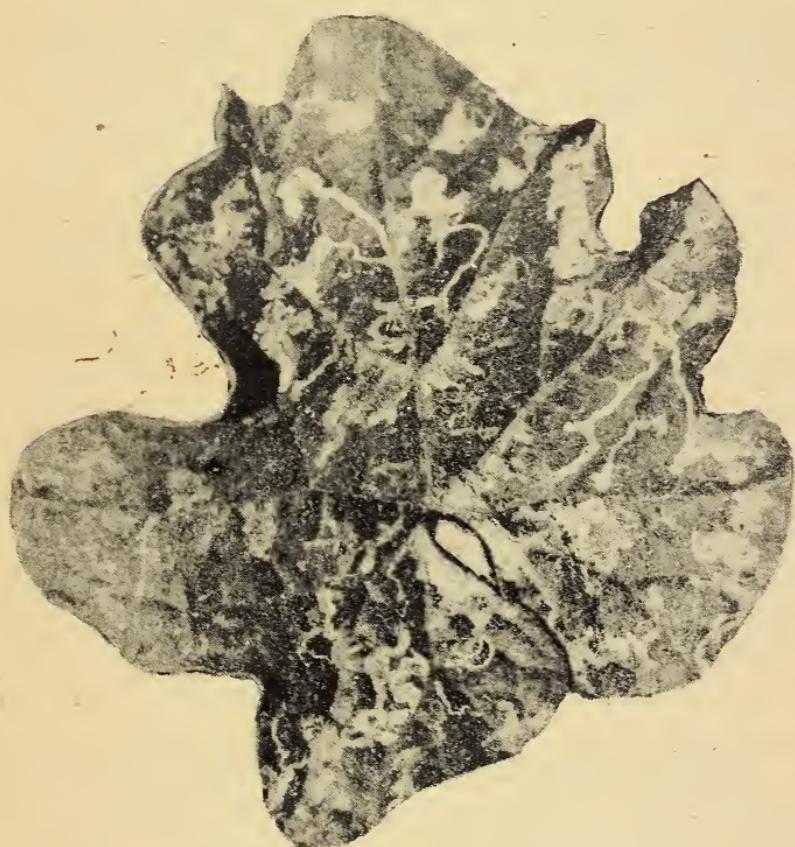


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# CONTROL of CANTALOUP INSECTS

in the  
SALT RIVER VALLEY  
of ARIZONA



BUREAU of ENTOMOLOGY  
and PLANT QUARANTINE

Agricultural Research Administration  
U. S. DEPARTMENT OF AGRICULTURE

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CANTALOUPS in the Salt River Valley of Arizona may be attacked by one or more of the following insects: the beet leafhopper, leaf miners, spider mites (red spiders), thrips, and aphids.

Insecticides will control these insects when necessary. But parasitic and predacious insects usually attack these harmful ones and keep them in check. Some insecticides, especially DDT, also kill these natural enemies as well as bees, which are necessary for the pollination of cantaloups. We must use insecticides wisely so not to kill these beneficial insects.

Never apply an insecticide to cantaloups as a general precaution to prevent insect attack. Consider each field individually, and apply an insecticide only when necessary. Often you can produce a satisfactory cantaloup crop without ever using an insecticide.

### What Insecticide to Use

Parathion is at present the only insecticide recommended for control of insects on cantaloup. It is best applied as a dust. Use a ready-mixed 2-percent parathion dust. A wettable powder spray is also satisfactory, but an emulsion spray might injure the cantaloup plants.

### Beet Leafhopper

The beet leafhopper is a sucking insect important to cantaloup growers because it may transmit the virus disease known as curly top. No other insect can transmit this disease. The



Left, healthy plants. Right, plants stunted by curly top.

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beet leafhopper breeds on weeds either within the cultivated area or in the surrounding desert.

Broods mature late in March or in April, and the leafhoppers fly from the weeds to the cantaloups. Cantaloup is not their favorite food plant, however, and they do not reproduce on it. They soon move on unless the fields also contain such weeds as sowbane or lambsquarters. Then they remain in the field, hopping back and forth between weeds and cantaloups.

Usually less than 10 percent of the leafhoppers carry the curly top virus. The percentage of virus carriers, as well as the potency of the virus, varies with the source of infestation. You cannot judge by their numbers alone how much leafhoppers will damage your fields, because they may not all have come from the same place and be equally dangerous as disease carriers.

Clean culture is a "must" in leafhopper control. By the time cantaloup plants have begun to send out runners, they have also developed considerable resistance to curly top. They are most

susceptible in the cotyledon and two-leaf stages of growth. Protect these young plants from the beet leafhopper; weed the fields as early as possible. If leafhoppers migrate to the fields before you weed, apply a 2-percent parathion dust and remove weeds immediately afterward.

### Leaf Miners

A cantaloup leaf that has been injured by leaf miners is shown on the cover of this leaflet.

You seldom need to control leaf miners with insecticides. Nature normally controls them. Fifteen species of tiny wasplike parasites are known to attack leaf miners, and ordinarily hold them in check. Most of the insecticides that kill leaf miners also kill these beneficial insects. However, some insecticides, such as DDT, kill the parasites and not the leaf miners, so that leaf miners build up rapidly after their use.

If you need to control leaf miners, use a 2-percent parathion dust. Since it is effective for only a short time, you may have to dust twice. However, do not repeat unless you still find numbers of the pests.

### Spider Mites

Spider mites, also known as red spiders, have attacked cantaloup plantings in recent years. If spider mites are a pest, use a 2-percent parathion dust. This insecticide does not last long in the field and does not keep spider

mite eggs from hatching; so you will usually need to apply it again after about a week.

### Thrips

Several species of thrips infest fields of cantaloups in the Salt River Valley. Usually they are a minor problem. If so, do not bother to get rid of them. However, if great numbers get on very small plants early in the season, they slow down plant growth, and you need to do something.

We are not sure just why, but when thrips are killed spider mites increase rapidly. Although the species of thrips usually found on cantaloups presumably feed only on plants, high thrips populations seem to keep spider mite populations low. Some insecticides, such as DDT, kill thrips but not spider mites. DDT dust is effective for a long time, but both spider mites and leaf miners may increase if you use it. Therefore, to control thrips on young plants, use a 2-percent parathion dust, since it also controls spider mites and leaf miners.

### Aphids

You will not often need to get rid of aphids, but if they build up in large numbers, they may cause severe leaf curling and permanently injure the cantaloup plants.

When aphids first show up, look for the small wasplike insects that parasitize them and ladybeetles and aphid lions that feed upon them. If you find

these natural enemies, you probably will not need to use an insecticide. If aphids continue to increase, one dusting with 2-percent parathion will usually control them.

### How to Apply Parathion

Parathion dust may be applied either with ground equipment or by means of aircraft. With ground equipment use 15 to 20 pounds of the 2-percent dust per acre, and from aircraft use 25 to 30 pounds.

Good weather conditions are necessary for satisfactory results, particularly from airplane applications on such a low-growing crop as cantaloup. The wind movement should not be more than 5 miles per hour.

A number of good power dusters are on the market for application from the ground. Either a tractor-mounted one utilizing the power take-off or a duster equipped with an auxiliary motor is satisfactory if in good repair and proper adjustment.

To control beet leafhoppers, blanket the entire field with dust, since most of these insects are on weeds or even resting on open ground. To control all other insect pests, direct the nozzles to cover only the cantaloup plants.

Drive slowly. You cannot dust well at high speed. Have the air velocity at the nozzles sufficient to penetrate the foliage with dust but not enough to blow the dust off the leaves. Use a lightweight canvas drag to make any duster more efficient and to check drift.

If you prefer to use a spray, apply the same amount of active ingredient per acre as for ground dust applications.

### Precautions

Parathion is extremely toxic if swallowed, inhaled, or absorbed through the skin, and may cause death. It should be used only by a trained operator who will assume full responsibility and enforce the precautions prescribed by the manufacturers.

Store parathion insecticides in plainly labeled containers. After working with them, wash the hands or any exposed parts of the body thoroughly.

Wear protective clothing, gloves, goggles, and a respirator equipped with a canister specified for use in handling organic vapors and dusts. Replace the canister with a new one after use.

Do not let the dust billow up into your face when emptying sacks into the hopper of a duster.

Do not smoke when working with parathion.

Bathe thoroughly after working with parathion. Don't put the same clothes back on until they have been washed.

Atropine sulfate is an antidote for parathion. Get a doctor to prescribe a supply of 1/100-grain tablets to keep on hand for first-aid use. If you suspect parathion poisoning, call a physician at once. If symptoms include blurred vision, abdominal cramps, and tightness in the chest, don't wait for a doctor. Give two atropine tablets at once and then call the doctor.

Do not dust with parathion when hives of bees are near enough to be affected by the drift. Dust at night if possible.

### Other Insecticides Being Tested

Other insecticides besides parathion, such as chlordane, aldrin, and dieldrin, are being tested for the control of cantaloup insects, but they cannot be recommended until further information is available as to whether or not they may be absorbed by the plants and translocated to the cantaloups.

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